REMARKS

Claims 1 – 17 remain in this application. The claims were rejected based on provisional double patenting. A check with PAIR indicates that the application in question has been abandoned. Thus, this rejection is moot. Claims were also rejected in some cases as anticipated by and in other cases as obvious over Loucks. Applicants respectfully traverse this rejection.

In the reference, as shown in Fig. 3, data is transferred from an application address space to a personality neutral services address space and then from the personality neutral services address space to a dominant personality server address space with synchronization kept among these spaces. Further, operation is advanced in the order of the application address space, the personality neutral services address space and the dominant personality server address space.

However, the reference fails to teach finding a sequence of the other operation system with the above synchronization maintained. In other words, the reference does not teach (1) the operation of a recording unit for finding a sequence of the other operating system, (2) the function of the searching unit, and (3) the function for finding the sequence of the other operating system defined in the wherein clause, as presently claimed. The discussion below sets this out in more detail.

Limitation

> a recording unit for recording operation information transferred from an operation information memory for storing an operation state of each of said operating systems, said operation information, obtained through a synchronization operation operating the plurality of operating systems at the same time during a time-shared switching operation thereof, and being assumed as a reference to other operation information items corresponding to each other and regarded to have been generated approximately at the same time; and

Disclosure Applied by Examiner

> The cost effective development of operating environments able to support multiple operating system personalities requires that common elements between the operating systems be extracted and coalesced into a limited number of processes. It is also desirable to provide an ability for a system user to select a single dominant personality to control overall system function while allowing the use of other operating system personalities as needed.
>
> The technical problem addressed by the present invention is to develop a system and method for efficiently supporting concurrent multiple operating system personalities on a hardware system. A second problem is to provide effective

means for communicating with the hardware resources necessarily shared by the multiple systems.

SUMMARY OF THE INVENTION

The present invention is directed to solving these problems by implementing a system and method for supporting multiple concurrent operating system personalities.

The present invention provides a system having components for coordinating resources between operating system personalities and for effectively communicating between the personalities. Methods of effective communication are also disclosed.

Comment

Neither this disclosure nor the WAIT in Fig. 3 is directed to a recording unit operating as claimed. This limitation claims a specific element and also requires more than mere synchronization. It requires finding and recording "an operation state of each of said operating systems. Such is simply not taught by the reference.

Limitation

a searching unit for searching operation information assumed as a reference to said other operation information items from said operation information items recorded in said operation information memories of said operating systems;

Disclosure Applied by Examiner

It is therefore an object to provide concurrent operating system support transparent to the application process.

It is yet another object of the present invention to provide concurrent multiple operating system support without performance advantage to the dominant personality.

The system of the present invention, in operating, requires little extra overhead to support concurrently running operating system environments. In monolithic operating systems or in single personality implementations of Mach there is typically a request from an application to the system level or kernel for service. Mach may handle the message directly or route it for server handling, but the Mach architecture adds little overhead to this transaction. The message based implementation of the preferred embodiment attempts to adhere to that model of minimal message traffic. Applications using the dominant personality should perceive the same response as they would get in a single operating system implementation. Most sub-dominant personality request will be similarly quickly

handled. Only resource contention exceptions will suffer the added message traffic of checking with the dominant personality server.

Comment

There is no disclosure here about searching, let alone searching of "said operation information items recorded in said operation information memories of said operating systems." Again disclosure of this element is just not found here or elsewhere in this reference.

Limitation

wherein said management system finds a sequence of other operation information items recorded in said operation information memories of said operating systems according to the correspondence to said searched operation information.

Disclosure Applied by Examiner

The microkernel approach has been suggested as a method for rapidly adapting operating systems to new hardware platforms and for allowing multiple operating systems to be rapidly adapted to existing platforms It has been proposed to supply either a single or multiple operating system personality with each system product for a particular hardware architecture. See "A Catalyst for Open System", by Richard Rashid, Datamation, May 15, 1989, pp 32-33 for additional background.

The developers of the Mach Microkernel at CMU have proposed supporting multiple operating system personalities running on a single microkernel.

Personality neutral services 212 are provided to support general tasks that need not have an operating system flavor. Examples are file systems, communication transport services and distributed systems services. These personality neutral services accept process requests from any operating system personality and supply the necessary services. Coordination of these services is through object oriented and procedural interfaces 213.

Alternate operating system personalities are implemented as sub-dominant personality servers 214. Each of these servers interfaces with the microkernel and the other servers through interface 215. The alternate personalities provide operating system environments for those environments different than the dominant personality environment. In addition, personality unique services may be further separated.

Applications executed by the system or user are shown at 208. The applications execute without knowledge of the dominant personality or the microkernel. Each executes as though its target operating system was in full control of the computer hardware.

> Interfaces 211 include object oriented interfaces as well as standard procedural interfaces. The object oriented interfaces are responsive to object messages sent by the dominant personality or to the dominant personality. The procedural interface is a more traditional application programming interface (API) that accepts certain command or routine calls with parameters. The interface 211 communicates with the other processes through the Mach microkernel messaging services.

Comment

This limitation requires finding "a sequence of other operation information items recorded in said operation information memories of said operating systems." Nothing in these cited portions speaks of any of "finding," "sequence" or "operation information." The first cites simply talk about "supporting multiple operating system personalities running on a single microkernel." Here we see that the personality neutral services need not have an operating system flavor. This hardly can suggest finding "a sequence of other operation information items." In general none of the cited portions is directed to what is claimed. As with the other limitations, this reference simply does not teach or suggest what is claimed.

Thus, claim 1 and all the remaining claims clearly define over this art and are in condition for allowance, prompt notice of which is respectfully solicited.

The Examiner is invited to contact the undersigned to discuss any matter concerning this application.

Applicants respectfully request a two month Extension of Time to respond to the Final Rejection of May 7, 2004. The extended period expires October 7, 2004.

The Office is hereby authorized to charge the fee of $430.00 for a Petition for Extension of Time Under 37 C.F.R. § 1.136(a) and any additional fees under 37 C.F.R. § 1.16 or § 1.17 or credit any overpayment to Deposit Account No. 11-0600.

Respectfully submitted,

Dated: October 6, 2004

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